

IGA Monitoring Report

Tempe Aviation Commission

Month:

January 2005

Prepared by:

City of Tempe for the Tempe Aviation Commission (TAVCO)
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1. Introduction

This report is assembled for the Tempe Aviation Commission (TAVCO) to monitor the monthly compliance of operations at Phoenix Sky Harbor International Airport with certain noise mitigation flight procedures over the City of Tempe. TAVCO consists of Tempe residents appointed by the Tempe Mayor with approval of the City Council to assist and advice on aviation noise and other aviation issues. The City of Tempe is located directly east of the Phoenix Sky Harbor International Airport in Phoenix, which has 3 parallel runways, Runway 8/26, Runway 7L/25R and Runway 7R/25L.

In 1994 the City of Phoenix and the City of Tempe agreed to continue noise mitigation flight procedures already in use over Tempe and to introduce a new procedure for aircraft arriving over Tempe to land on the new third runway (7R/25L) at Phoenix Sky Harbor International Airport from the east. Tempe had prior to the agreement challenged the plans for the construction of a third runway because of inadequate assessment of the environmental impacts.

a) The 4-DME procedure

The 1993 Environmental Impact Statement (EIS)

According to the 1993 EIS, which among other planned improvements included the construction of a third runway, departures to the east from the new runway would follow the so-called "One-DME" Standard Instrument Departure procedure (SID) similar to the SID already in use by aircraft departing to the east from the airport¹.

The 1994 Record of Decision

The continued use of the "One-DME" procedure was also stated in the Record of Decision (ROD) for the final where the FAA approved the master plan update that included the plans for a third runway. When Phoenix and Tempe signed the Intergovernmental Agreement (IGA) on noise mitigation flight procedures over Tempe, the FAA reaffirmed its commitment to uphold these procedures. The "One-DME procedure" became the "4-DME procedure" when a navigational aid (VORTAC) was moved closer to the airport.

Standard Instrument Departure Procedure (SID)



North Runway 8L (Now 8): "Fly heading 085° to intercept PHX-075, across PXR R-350 at or below 3,000'. At 4 DME east of PHX VORTAC, turn right/left"

Center Runway 8R (Now 7L): "Fly direct PHX VORTAC, cross PHR at or below 3,000'. Proceed via PHX R-075 to 4 DME east, turn right/left" (FAA SW-1 of August 10, 2000)

Measure for Departure Procedure Compliance

Based on the 4-DME Standard Instrument Departure procedure (SID) TAVCO proposed a corridor over the river bed of the Salt River to measure how jet aircraft and large turboprop aircraft² complied with the "4-DME procedure" using the Noise and Flight Track Monitoring System that the airport had agreed to install. This proposal was adopted by the Tempe City Council, but was rejected by the City of Phoenix. The airport use a vertical line to measure compliance of jet

¹ Source: Final Environmental Impact Statement Phoenix Sky Harbor International Airport Master Plan Update Improvements, November 1993, Section 5.

² Aircraft certified and operated according to Title 14 FAR Part 121 or 135 with gross weight exceeding 12,500 pounds.

departures called the "4-DME Gate" or the "Exit Window Only Gate", which is a 5,500 feet long imaginary line running north south at 4-DME or approximately at Price Road. Turns by carrier jets north or south away from the Salt riverbed before reaching this line, or failures to stay inside the north or south end of this line are registered and in a compiled format submitted to the airlines in a "Notice of Deviation" letter from the airport administration. Deviations influenced by local weather conditions are excluded from the notification procedure.

This report compares departure compliance using the Tempe Corridor and the Phoenix "4-DME Gate" or "Exit Window Only Gate", and for the Tempe Corridor measure includes large turboprop aircraft because they are part of the 1994 agreement. Since the implementation of the "4-DME Gate" deviation standard for large carriers in 1997, the main issue of concern has been how well these aircraft on departure from Phoenix Sky Harbor International Airport to the east keep to the Salt riverbed and avoid flying over populated areas in Tempe.

b) The "Side Step" procedure

This is a noise mitigating procedure for jets and large turboprop aircraft that approach Phoenix Sky Harbor International Airport from the east to land on the third runway, Runway 25L. Aircraft are directed to approach the center runway, Runway 25R, until they are 3 NM from the runway end or abeam Sun Devil Stadium at Mill Avenue in Tempe. At this point the pilot can be requested by the Phoenix air traffic controllers to change the approach course to land on Runway 25L. When the pilot directs the aircraft from a stabilized approach to the Runway 25R towards the left and line up for landing on Runway 25L, the pilot performs a "side step procedure". This procedure is designed to keep large aircraft approaches over the river bed as long as possible before they close in towards neighborhoods in downtown Tempe south of the riverbed.



On March 27, 2002 the FAA suspended implementation of a charted "side step" procedure because of flight safety concerns. Presently the FAA is clearing jets and large turboprop aircraft for straight-in approaches to Runway 25L from the east. No measure has been set up in the airport Noise and Flight Track Monitoring System to monitor the use of this procedure, and in its present format this report does not include any data on the utilization of the "side step" procedure.

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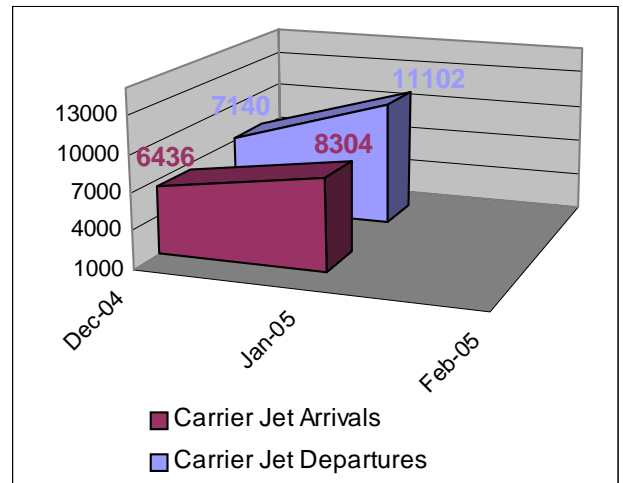
c) Departure Split (Equalization)

This procedure attempts to disperse evenly on an annual basis the noise impact of eastbound and westbound jet and large turboprop aircraft departures between Tempe and Phoenix during day and nighttime hours.

2. Aircraft Operations

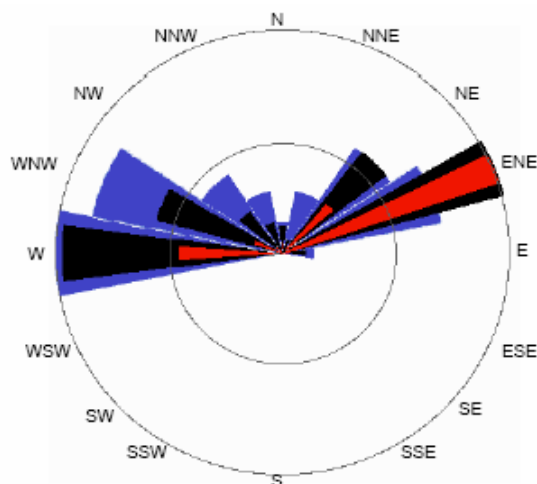
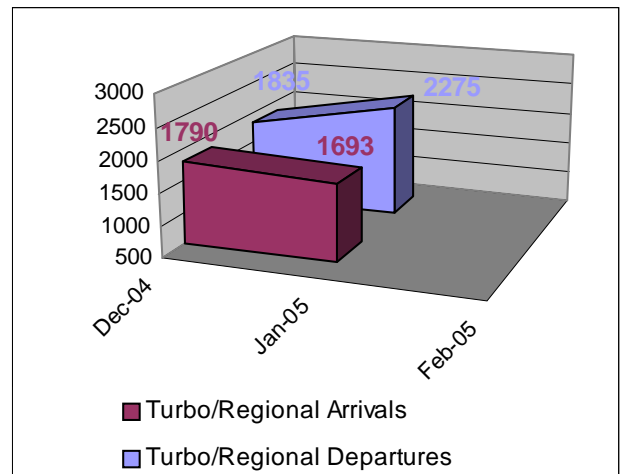
Carrier Aircraft

The number of large carrier jets departing to the east during the month of January 2005 increased 55.5% compared to December 2004. Carrier arrival operations from the east towards the west increased 29.0% compared to operations in December 2004.



Regional Jets & Large Turboprop Aircraft

Regional jets and large turboprop departures towards the east increased by 24.0% in January 2004 compared to December 2004. The number of regional jets and large turboprop aircraft arriving from the east decreased by 5.4% compared to the previous month.



For each of the sectors the outermost (blue) wedges show the wind frequency distribution.

The middle (black) wedges show the distribution of the product of the two columns, i.e. the wind speeds times their frequency.

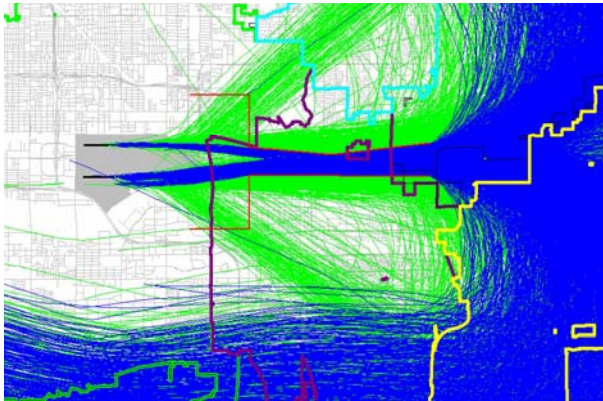
The innermost (red) wedges show the distribution of the wind speeds cubed (i.e. the energies) multiplied by their frequencies.

Moderate winds mainly from the east northeast with gusts up to moderate breeze, 12.5 knots, during two evening periods.

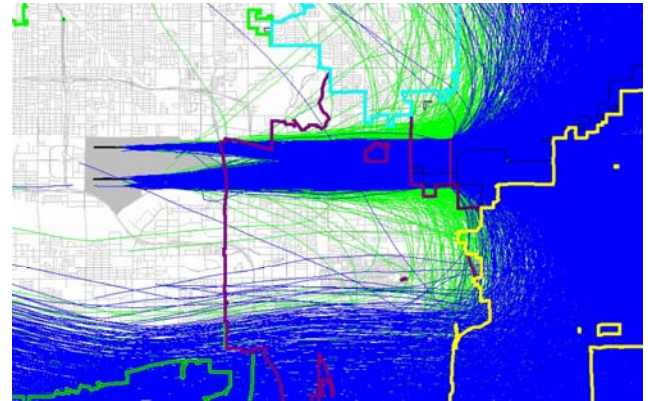
3. Departure Compliance

Compliance Rates

Including the large turboprop aircraft, which routinely are routed on approximate departure angles of 120° towards the southeast and 60° towards the northeast, **58.5%** of all jet and larger turboprop aircraft departures to the east complied with the Tempe Corridor during the month of January 2005. 96.4% of the jets complied with the Phoenix 4 DME gate. Departures by large turboprop aircraft are not included in the Phoenix gate compliance rate.

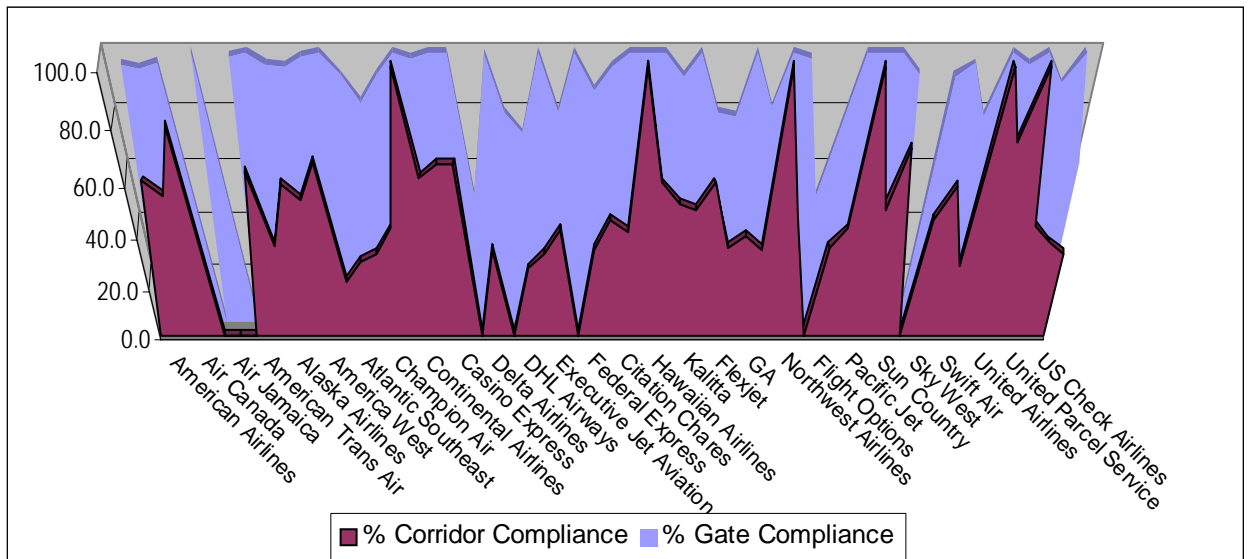


Flight tracks inside the Tempe Corridor are depicted in blue.



Flight tracks inside the Phoenix Gate are depicted in blue.

Carrier	ICAO Code	%	Carrier	ICAO Code	%	Carrier	ICAO Code	%
American Airlines	AAL	60.7	Air Transport	CYO	0.0	Northwest Airlines	NWA	48.0
Airborne Express	ABX	55.3	Delta Airlines	DAL	34.5	Omni Air	OAE	0.0
Air Canada	ACA	80.0	D & D Aviation	DDA	0.0	Flight Options	OPT	35.3
Ameristar Jet Charter	AJI	0.0	DHL Airways	DHL	27.3	Piedmont Aviation Services	PCE	42.9
Air Jamaica	AJM	0.0	US Department of Justice	DOJ	33.3	Pacific Jet	PCJ	100.0
Ameriflight	AMF	0.0	Executive Jet Aviation	EJA	42.5	Ryan International	RYN	50.0
American Trans Air	AMT	63.9	Executive Jet Management	EJM	0.0	Sun Country	SCX	72.4
Aero Mexico	AMX	36.0	Federal Express	FDX	35.0	Spirit Aviation	SJJ	0.0
Alaska Airlines	ASA	59.6	Frontier Airlines	FFT	46.1	Sky West	SKW	46.0
Mesa Airlines	ASH	54.1	Citation Chares	FIV	41.7	Southwest Airlines	SWA	59.1
America West	AWE	67.4	Florida Jet Service	FJS	100.0	Swift Air	SWQ	28.6
British Airways	BAW	22.2	Hawaiian Airlines	HAL	60.0	TAG Aviation	TAG	100.0
Atlantic Southeast	CAA	30.0	JetBlue	JBU	52.0	United Airlines	UAL	74.4
Capital Cargo	CCI	33.3	Kalitta	KFS	50.0	Universal Jet Aviation	UEJ	100.0
Champion Air	CCP	42.9	Kitty Hawk Air Cargo	KHA	60.0	United Parcel Service	UPS	44.1
Sunwest Home Aviation	CNK	100.0	Flexjet	LXJ	35.7	US Airways	USA	37.7
Continental	COA	62.0	Midwest Express	MEP	40.0	US Check Airlines	USC	33.3
Custom Air Transport	CTT	66.7	GA	N	34.6	Westjet	WJA	62.5
Casino Express	CXP	0.0	North American Jet Charter	NAJ	100.0			

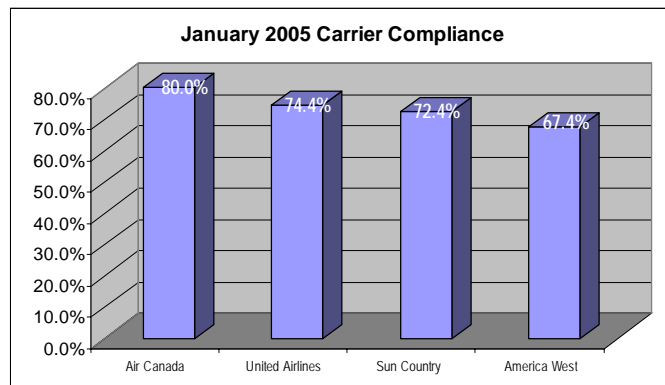


Departures excluded³:

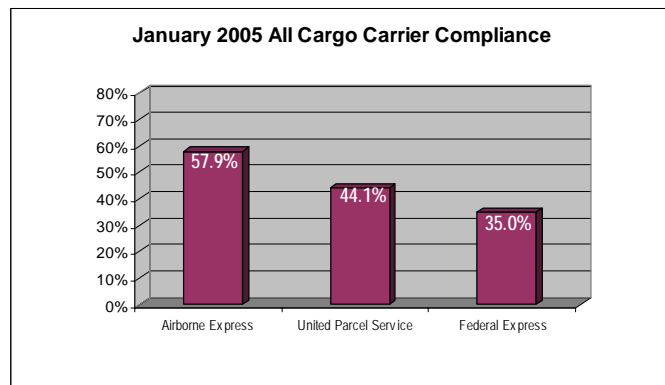
1/1/2005 9:52-10:52 AM	1/6/2005 10:13-11:07 AM	1/19/2005 10:01-11:33 PM
1/2/2005 9:52-11:34 PM	1/8/2005 7:51-8:53 AM	1/22/2005 4:12-4:32 PM
1/3/2005 5:37-9:06 PM	1/8/2005 11:02 AM-12:12 PM	1/22/2005 10:35-11:05 PM
1/3/2005 11:07-11:49 PM	1/11/2005 8:09-8:52 AM	1/26/2005 10:07-3:07 PM
1/4/2005 12:02-12:37 PM	1/11/2005 10:14-11:11 AM	1/28/2005 11:38 AM-12:07 PM
1/4/2005 5:12-5:32 PM	1/13/2005 12:05-1:16 PM	1/31/2005 4:08-5:58 PM

Top Airlines

Among the carriers with over 10 departures to the east during the month of January 2005, 3 had 70% or more of their aircraft stay within the Tempe Corridor. During the previous month 4 carriers had 70% or more of their aircraft in compliance.



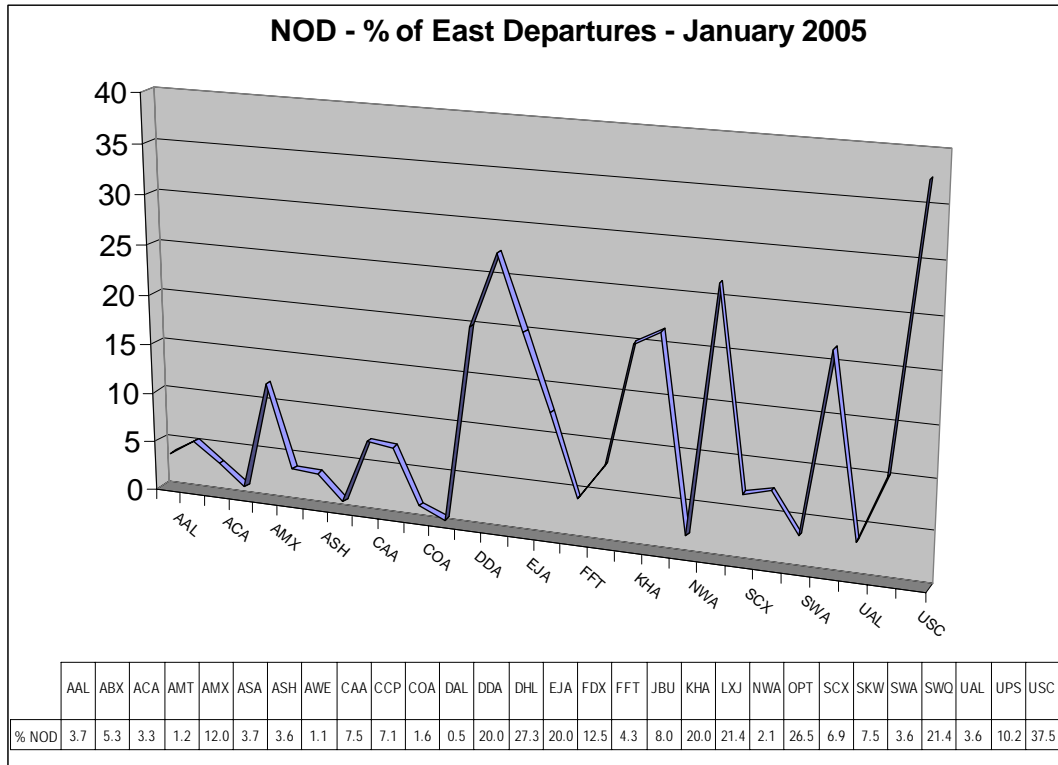
The compliance rates for the top cargo carriers with more than 10 departures to the east during the month of January 2005 were low. Last 2 months the top 3 all cargo carriers have had between 47% and 50% and between 40% and 58% of their aircraft in compliance with the Tempe Corridor.



³ Based on City of Phoenix evaluations of weather influencing navigation east to 4DME.

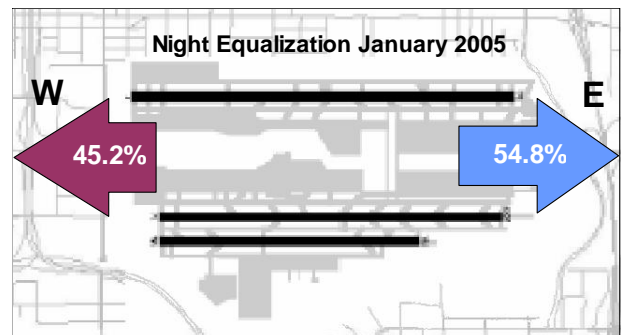
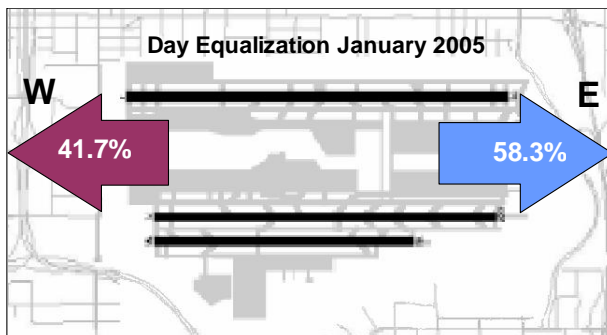
Notice of Deviation

The City of Phoenix issues Notice of Deviation (NOD) to airlines and operators of smaller jet aircraft if any of their jets fails to comply with the 4DME Gate. Among the airlines with at least 5 departures to the east during the month of January 2005, DHL and Flight Options received the most notices relative to the number of east departures registered for each operator.



4. East/West Departure Split

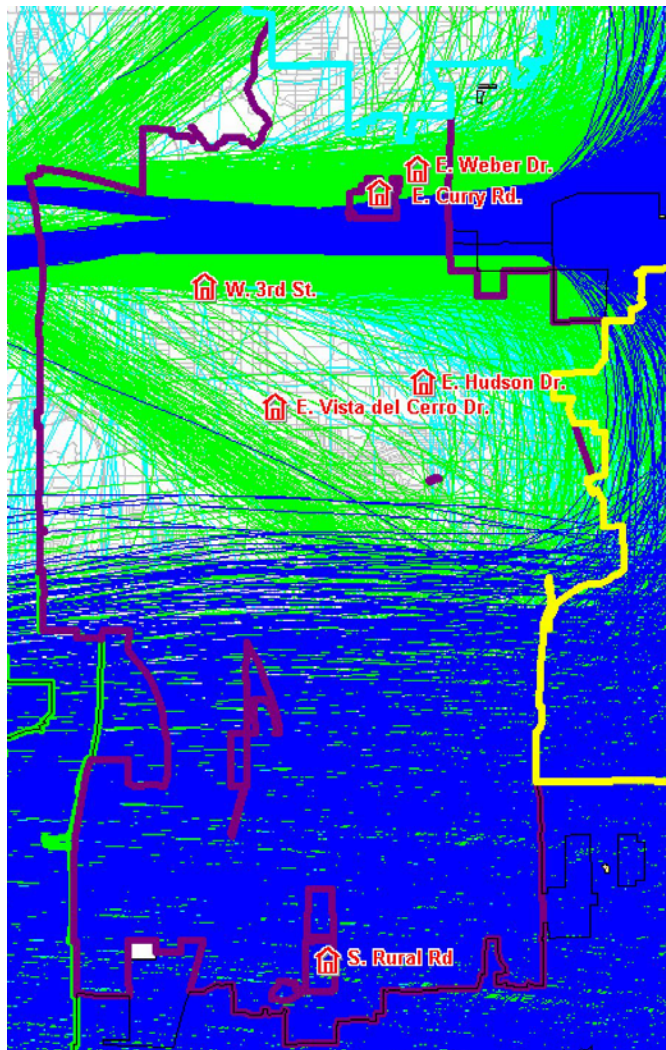
The split in jet and large commuter aircraft departures to the east and west of the Phoenix Sky Harbor International Airport is generally not as favorable for Tempe during the nighttime hours compared to daytime hours. During January 2005 both day and night operations were unfavorable to Tempe residents. 54.8% went east during nighttime and 58.3% went east during daytime.



Day and nighttime departures are generated by a query covering day + evening hours and nighttime hours. Day = 7: 00 a.m. to 9:59:59 p.m. local time and Night = 9:59:59 p.m. to 7:00 a.m.

5. Complaints

The City of Tempe started registering aircraft noise complaints from Tempe residents in October 2000 after the opening of the third runway at Phoenix Sky Harbor International Airport. During January 2005, 6 residents filed 6 aircraft noise complaints with the City of Tempe. The residents reported a noticeable increase in traffic over their homes, changes in flight paths, which brought early morning departures and low aircraft on final approach over their homes creating more noise than what is normally experienced. Excessive noise created by fighter jets using the Sky Harbor flight paths was also reported.



Green flight tracks = Departures outside the Tempe Corridor
 Blue flight tracks = Departures inside the Tempe Corridor
 Turquoise flight tracks = Arrivals
 Address of resident that filed complaints = 